Sequence Listing

<110> Chen, Jian
  Filvaroff, Ellen
  Goddard, Audrey
  Gurney, Austin
  Li, Hanzhong
  Wood, William I.

<120> IL-17 HOMOLOGOUS POLYPEPTIDES AND THERAPEUTIC USES THEREOF

<130> P1381-R1

<141> 1999-05-14

<150> US 60/085,579
<151> 1998-05-15

<150> US 60/113,621
<151> 1998-12-23

<160> 26

<210> 1
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<213> Homo sapiens

<400> 1

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Met Asp Trp Pro His Asn Leu Leu Phe Leu Leu Thr Ile Ser Ile
 1               5                  10                  15

Phe Leu Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys
                  20                  25                  30

Gly Gln Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val
                  35                  40                  45

Pro Leu Asp Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu
                  50                  55                  60

Glu Tyr Glu Arg Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn
                  65                  70                  75

Ser Ser Glu Leu Ala Gln Arg Lys Cys Glu Val Asn Leu Gln Leu
                  80                  85                  90
```

```
        Trp Met Ser Asn Lys Arg Ser Leu Ser Pro Trp Gly Tyr Ser Ile
                        95                  100                  105

   5    Asn His Asp Pro Ser Arg Ile Pro Val Asp Leu Pro Glu Ala Arg
                        110                 115                  120

        Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr Met Gln Glu Asp
                        125                 130                  135
  10
        Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val Pro Val Arg
                        140                 145                  150

        Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys Arg Gln
  15                    155                 160                  165

        Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile Phe
                        170                 175                  180
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         cctcacaacc tgctgtttct tcttaccatt tccatcttcc tggggctggg  100

  30     ccagcccagg agccccaaaa gcaagaggaa ggggcaaggg cggcctgggc  150

         ccctggcccc tggccctcac caggtgccac tggacctggt gtcacggatg  200

         aaaccgtatg cccgcatgga ggagtatgag aggaacatcg aggagatggt  250
  35
         ggcccagctg aggaacagct cagagctggc ccagagaaag tgtgaggtca  300

         acttgcagct gtggatgtcc aacaagagga gcctgtctcc ctggggctac  350

  40     agcatcaacc acgaccccag ccgtatcccc gtggacctgc cggaggcacg  400

         gtgcctgtgt ctgggctgtg tgaacccctt caccatgcag gaggaccgca  450

         gcatggtgag cgtgccggtg ttcagccagg ttcctgtgcg ccgccgcctc  500
  45
         tgcccgccac cgccccgcac agggccttgc cgccagcgcg cagtcatgga  550

         gaccatcgct gtgggctgca cctgcatctt ctgaatcacc tggcccagaa  600
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2

gccaggccag cagcccgaga ccatcctcct tgcacctttg tgccaagaaa 650

ggcctatgaa aagtaaacac tgacttttga aagcaag 687

<210> 3
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<212> PRT
<213> Homo sapiens

<400> 3

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Met Thr Leu Leu Pro Gly Leu Leu Phe Leu Thr Trp Leu His Thr
 1               5                  10                  15

Cys Leu Ala His His Asp Pro Ser Leu Arg Gly His Pro His Ser
                20                  25                  30

His Gly Thr Pro His Cys Tyr Ser Ala Glu Glu Leu Pro Leu Gly
                35                  40                  45

Gln Ala Pro Pro His Leu Leu Ala Arg Gly Ala Lys Trp Gly Gln
                50                  55                  60

Ala Leu Pro Val Ala Leu Val Ser Ser Leu Glu Ala Ala Ser His
                65                  70                  75

Arg Gly Arg His Glu Arg Pro Ser Ala Thr Thr Gln Cys Pro Val
                80                  85                  90

Leu Arg Pro Glu Glu Val Leu Glu Ala Asp Thr His Gln Arg Ser
                95                  100                 105

Ile Ser Pro Trp Arg Tyr Arg Val Asp Thr Asp Glu Asp Arg Tyr
                110                 115                 120

Pro Gln Lys Leu Ala Phe Ala Glu Cys Leu Cys Arg Gly Cys Ile
                125                 130                 135

Asp Ala Arg Thr Gly Arg Glu Thr Ala Ala Leu Asn Ser Val Arg
                140                 145                 150

Leu Leu Gln Ser Leu Leu Val Leu Arg Arg Arg Pro Cys Ser Arg
                155                 160                 165

Asp Gly Ser Gly Leu Pro Thr Pro Gly Ala Phe Ala Phe His Thr
                170                 175                 180
```

```
       Glu Phe Ile His Val Pro Val Gly Cys Thr Cys Val Leu Pro Arg
                     185                 190                 195

       Ser Val
5          197


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10 <213> Homo sapiens


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       gcccaccatg acccctccct caggggggcac ccccacagtc acggtacccc 150

       acactgctac tcggctgagg aactgcccct cggccaggcc cccccacacc 200

20     tgctggctcg aggtgccaag tgggggcagg ctttgcctgt agccctggtg 250

       tccagcctgg aggcagcaag ccacaggggg aggcacgaga ggccctcagc 300

25     tacgacccag tgcccggtgc tgcggccgga ggaggtgttg gaggcagaca 350

       cccaccagcg ctccatctca ccctggagat accgtgtgga cacggatgag 400

       gaccgctatc cacagaagct ggccttcgcc gagtgcctgt gcagaggctg 450

30     tatcgatgca cggacgggcc gcgagacagc tgcgctcaac tccgtgcggc 500

       tgctccagag cctgctggtg ctgcgccgcc ggccctgctc ccgcgacggc 550

35     tcggggctcc ccacacctgg ggcctttgcc ttccacaccg agttcatcca 600

       cgtccccgtc ggctgcacct gcgtgctgcc ccgttcagtg tgaccgccga 650

       ggccgtgggg cccctagact ggacacgtgt gctccccaga gggcacccccc 700

40     tatttatgtg tatttattgt tatttatatg cctcccccaa cactacccttt 750

       ggggtctggg cattccccgt gtctggagga cagccccccca ctgttctcct 800

45     catctccagc ctcagtagtt gggggtagaa ggagctcagc acctcttcca 850

       gcccttaaag ctgcagaaaa ggtgtcacac ggctgcctgt accttggctc 900
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4

cctgtcctgc tcccggcttc ccttacccta tcactggcct caggccccgc 950

aggctgcctc ttcccaacct ccttggaagt acccctgttt cttaaacaat 1000

5   tatttaagtg tacgtgtatt attaaactga tgaacacatc cccaaaa 1047

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<212> DNA
10   <213> Homo sapiens

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<221> unknown
<222> 105-115
15   <223> unknown base

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gctcnnnnnn nnnnnaattc ggtacgaggc tggggttcag gcgggcagca 150

gctgcaggct gaccttgcag cttggcggaa tggactggcc tcacaacctg 200

25   ctgtttcttc ttaccatttc catcttcctg gggctgggcc agcccaggag 250

ccccaaaagc aagaggaagg ggcaagggcg gcctgggccc ctggtccctg 300

30   gccctcacca ggtgccactg gacctggtgt cacggatgaa accgtatgcc 350

cgcatggagg agtatgagag gaacatcgag gagatgttgg cccagctgag 400

gaacagttca gagctggccc agagaaagtg tgaggtcaac ttgcagctgt 450

35   ggatgtccaa caagaggagc ctgtctccct ggggctacag catcaaccac 500

gaccccagcc gtatccccgt ggacctccgg aggcacggtg cctgtgtctg 550

40   ggcttgtgtg aacccccttca ccatgcagga ggaccgcagc atggtgagcg 600

tgccggtgtt cagccaggtt cctgtgcgcc ccgcctctg cccgccaccg 650

ccccgcacag ggccttgccg ccagcgcgca gtcatggaga ccatcgctgt 700

45   gggctgcacc tgcatcttct gaatcgacct ggcccagaag ccaggccagc 750

agcccgagac catcctcctt gcacctttgt gccaagaaag gcctatgaaa 800

5

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        agtaaacact gacttttgaa agcaaaaaaa 830

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   5    <211> 397
        <212> DNA
        <213> Artificial

        <220>
  10    <221> unknown
        <222> 10, 150, 267
        <223> unknown base

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        ctcacaacct gctgtttctt cttaccattt ccatcttcct ggggctgggc 100

        agccaggagc cccaaaagca agaggaaggg gcaagggcgg cctgggcccn 150
  20
        tggcctggcc tcaccaggtg ccactggacc tggtgtcacg gatgaaaccg 200

        tatgcccgca tggaggagta tgagaggaac atcgaggaga tggtggccca 250

  25    gctgaggaac agctcanaag ctggcccaga gaaagtgtga ggtcaacttg 300

        cagctgtgga tgtccaacaa gaaggagcct gtctcccttg gggctacaag 350

        catcaaccac cgaccccagc cgtatccccg tgggaccttg ccgggac 397
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        <210> 7
        <211> 230
        <212> DNA
        <213> Artificial
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        <400> 7
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        gcagaggctg tatcgatgca cggacgggcc gcgagacagc tgcgctcaac 100
  40
        tccgtgcggc tgctccagag cctgctggtg ctgcgccgcc ggccctgctc 150

        ccgcgacggc tcggggctcc ccacacctgg ggcctttgcc ttccacaccg 200

  45    agttcatcca cgtccccgtc ggctgcacct 230

        <210> 8
        <211> 24
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<212> DNA
<213> Artificial sequence

<400> 8
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<210> 9
<211> 24
<212> DNA
<213> Artificial sequence

<400> 9
gggacgtgga tgaactcggt gtgg 24

<210> 10
<211> 40
<212> DNA
<213> Artificial sequence

<400> 10
tatccacaga agctggcctt cgccgagtgc ctgtgcagag 40

<210> 11
<211> 155
<212> PRT
<213> Human

<400> 11

Met	Thr	Pro	Gly	Lys	Thr	Ser	Leu	Val	Ser	Leu	Leu	Leu	Leu	Leu
1				5					10					15

Ser	Leu	Glu	Ala	Ile	Val	Lys	Ala	Gly	Ile	Thr	Ile	Pro	Arg	Asn
				20				25						30

Pro	Gly	Cys	Pro	Asn	Ser	Glu	Asp	Lys	Asn	Phe	Pro	Arg	Thr	Val
				35				40						45

Met	Val	Asn	Leu	Asn	Ile	His	Asn	Arg	Asn	Thr	Asn	Thr	Asn	Pro
				50				55						60

Lys	Arg	Ser	Ser	Asp	Tyr	Tyr	Asn	Arg	Ser	Thr	Ser	Pro	Trp	Asn
				65				70						75

Leu	His	Arg	Asn	Glu	Asp	Pro	Glu	Arg	Tyr	Pro	Ser	Val	Ile	Trp
				80				85						90

Glu	Ala	Lys	Cys	Arg	His	Leu	Gly	Cys	Ile	Asn	Ala	Asp	Gly	Asn
				95				100						105

7

```
        Val Asp Tyr His Met Asn Ser Val Pro Ile Gln Gln Glu Ile Leu
                        110                 115                 120

  5     Val Leu Arg Arg Glu Pro Pro His Cys Pro Asn Ser Phe Arg Leu
                        125                 130                 135

        Glu Lys Ile Leu Val Ser Val Gly Cys Thr Cys Val Thr Pro Ile
                        140                 145                 150

 10
        Val His His Val Ala
                        155


        <210> 12
 15     <211> 408
        <212> PRT
        <213> Artificial


        <220>
 20     <223> Artificial Sequence 1-408


        <400> 12
        Met Asp Trp Pro His Asn Leu Leu Phe Leu Leu Thr Ile Ser Ile
         1               5                  10                  15
 25
        Phe Leu Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg Lys
                        20                  25                  30

        Gly Gln Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln Val
 30                     35                  40                  45

        Pro Leu Asp Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met Glu
                        50                  55                  60

 35     Glu Tyr Glu Arg Asn Ile Glu Glu Met Val Ala Gln Leu Arg Asn
                        65                  70                  75

        Ser Ser Glu Leu Ala Gln Arg Lys Cys Glu Val Asn Leu Gln Leu
                        80                  85                  90

 40
        Trp Met Ser Asn Lys Arg Ser Leu Ser Pro Trp Gly Tyr Ser Ile
                        95                  100                 105

        Asn His Asp Pro Ser Arg Ile Pro Val Asp Leu Pro Glu Ala Arg
 45                     110                 115                 120

        Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr Met Gln Glu Asp
                        125                 130                 135
```

8

Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val Pro Val Arg
               140   145   150

5   Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly Pro Cys Arg Gln
               155   160   165

Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile Phe
               170   175   180

10   Pro Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
               185   190   195

Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
               200   205   210

15   Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
               215   220   225

20   Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
               230   235   240

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
               245   250   255

25   Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
               260   265   270

30   His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser
               275   280   285

Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
               290   295   300

35   Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
               305   310   315

Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val.
               320   325   330

40   Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
               335   340   345

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
               350   355   360

45   Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
               365   370   375

```
      Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
                    380                 385                 390

5     Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
                    395                 400                 405

      Pro Gly Lys
              408
```

10
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<210> 13
<211> 425
<212> PRT
<213> Artificial
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15
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<220>
<223> Artificial Sequence 1-425
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20    Met Thr Leu Leu Pro Gly Leu Leu Phe Leu Thr Trp Leu His Thr
       1               5                   10                  15

      Cys Leu Ala His His Asp Pro Ser Leu Arg Gly His Pro His Ser
                    20                  25                  30

25    His Gly Thr Pro His Cys Tyr Ser Ala Glu Glu Leu Pro Leu Gly
                    35                  40                  45

      Gln Ala Pro Pro His Leu Leu Ala Arg Gly Ala Lys Trp Gly Gln
30                  50                  55                  60

      Ala Leu Pro Val Ala Leu Val Ser Ser Leu Glu Ala Ala Ser His
                    65                  70                  75

35    Arg Gly Arg His Glu Arg Pro Ser Ala Thr Thr Gln Cys Pro Val
                    80                  85                  90

      Leu Arg Pro Glu Glu Val Leu Glu Ala Asp Thr His Gln Arg Ser
                    95                  100                 105

40
      Ile Ser Pro Trp Arg Tyr Arg Val Asp Thr Asp Glu Asp Arg Tyr
                    110                 115                 120

      Pro Gln Lys Leu Ala Phe Ala Glu Cys Leu Cys Arg Gly Cys Ile
45                  125                 130                 135

      Asp Ala Arg Thr Gly Arg Glu Thr Ala Ala Leu Asn Ser Val Arg
                    140                 145                 150
```

10

Leu Leu Gln Ser Leu Leu Val Leu Arg Arg Arg Pro Cys Ser Arg
            155   160   165

5   Asp Gly Ser Gly Leu Pro Thr Pro Gly Ala Phe Ala Phe His Thr
            170   175   180

     Glu Phe Ile His Val Pro Val Gly Cys Thr Cys Val Leu Pro Arg
            185   190   195

10   Ser Val Pro Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
            200   205   210

     Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
15   215   220   225

     Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
            230   235   240

20   Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
            245   250   255

     Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg
            260   265   270

25   Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
            275   280   285

     Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
30   290   295   300

     Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
            305   310   315

35   Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
            320   325   330

     Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys
            335   340   345

40   Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
            350   355   360

     Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
45   365   370   375

     Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
            380   385   390

```
        Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
                        395           ,         400               405

5       Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
                        410               415               420

        Leu Ser Pro Gly Lys
                        425

10
        <210> 14
        <211> 212
        <212> PRT
        <213> Homo sapiens

15
        <400> 14
        Met Asn Ser Phe Ser Thr Ser Ala Phe Gly Pro Val Ala Phe Ser
          1               5               10                  15

20      Leu Gly Leu Leu Leu Val Leu Pro Ala Ala Phe Pro Ala Pro Val
                        20              25                  30

        Pro Pro Gly Glu Asp Ser Lys Asp Val Ala Ala Pro His Arg Gln
                        35              40                  45

25
        Pro Leu Thr Ser Ser Glu Arg Ile Asp Lys Gln Ile Arg Tyr Ile
                        50              55                  60

        Leu Asp Gly Ile Ser Ala Leu Arg Lys Glu Thr Cys Asn Lys Ser
30                      65              70                  75

        Asn Met Cys Glu Ser Ser Lys Glu Ala Leu Ala Glu Asn Asn Leu
                        80              85                  90

        Asn Leu Pro Lys Met Ala Glu Lys Asp Gly Cys Phe Gln Ser Gly
35                      95              100                 105

        Phe Asn Glu Glu Thr Cys Leu Val Lys Ile Ile Thr Gly Leu Leu
                        110             115                 120

40
        Glu Phe Glu Val Tyr Leu Glu Tyr Leu Gln Asn Arg Phe Glu Ser
                        125             130                 135

        Ser Glu Glu Gln Ala Arg Ala Val Gln Met Ser Thr Lys Val Leu
45                      140             145                 150

        Ile Gln Phe Leu Gln Lys Lys Ala Lys Asn Leu Asp Ala Ile Thr
                        155             160                 165
```

12

```
        Thr Pro Asp Pro Thr Thr Asn Ala Ser Leu Leu Thr Lys Leu Gln
                        170             175             180

  5     Ala Gln Asn Gln Trp Leu Gln Asp Met Thr Thr His Leu Ile Leu
                        185             190             195

        Arg Ser Phe Lys Glu Phe Leu Gln Ser Ser Leu Arg Ala Leu Arg
                        200             205             210
 10
        Gln Met
            212


        <210> 15
 15     <211> 320
        <212> PRT
        <213> Homo sapiens


        <400> 15
 20     Met Gly Ala Ala Arg Ser Pro Pro Ser Ala Val Pro Gly Pro Leu
            1           5               10              15

        Leu Gly Leu Leu Leu Leu Leu Leu Gly Val Leu Ala Pro Gly Gly
                        20              25              30
 25
        Ala Ser Leu Arg Leu Leu Asp His Arg Ala Leu Val Cys Ser Gln
                        35              40              45

        Pro Gly Leu Asn Cys Thr Val Lys Asn Ser Thr Cys Leu Asp Asp
 30                     50              55              60

        Ser Trp Ile His Pro Arg Asn Leu Thr Pro Ser Ser Pro Lys Asp
                        65              70              75

 35     Leu Gln Ile Gln Leu His Phe Ala His Thr Gln Gln Gly Asp Leu
                        80              85              90

        Phe Pro Val Ala His Ile Glu Trp Thr Leu Gln Thr Asp Ala Ser
                        95              100             105
 40
        Ile Leu Tyr Leu Glu Gly Ala Glu Leu Ser Val Leu Gln Leu Asn
                        110             115             120

        Thr Asn Glu Arg Leu Cys Val Arg Phe Glu Phe Leu Ser Lys Leu
 45                     125             130             135

        Arg His His His Arg Arg Trp Arg Phe Thr Phe Ser His Phe Val
                        140             145             150
```

13

```
      Val Asp Pro Asp Gln Glu Tyr Glu Val Thr Val His His Leu Pro
                      155             160                 165

 5    Lys Pro Ile Pro Asp Gly Asp Pro Asn His Gln Ser Lys Asn Phe
                      170             175                 180

      Leu Val Pro Asp Cys Glu His Ala Arg Met Lys Val Thr Thr Pro
                      185             190                 195
10
      Cys Met Ser Ser Gly Ser Leu Trp Asp Pro Asn Ile Thr Val Glu
                      200             205                 210

      Thr Leu Glu Ala His Gln Leu Arg Val Ser Phe Thr Leu Trp Asn
15                    215             220                 225

      Glu Ser Thr His Tyr Gln Ile Leu Leu Thr Ser Phe Pro His Met
                      230             235                 240

20    Glu Asn His Ser Cys Phe Glu His Met His His Ile Pro Ala Pro
                      245             250                 255

      Arg Pro Glu Glu Phe His Gln Arg Ser Asn Val Thr Leu Thr Leu
                      260             265                 270
25
      Arg Asn Leu Lys Gly Cys Cys Arg His Gln Val Gln Ile Gln Pro
                      275             280                 285

      Phe Phe Ser Ser Cys Leu Asn Asp Cys Leu Arg His Ser Ala Thr
30                    290             295                 300

      Val Ser Cys Pro Glu Met Pro Asp Thr Pro Glu Pro Ile Pro Asp
                      305             310                 315

35    Tyr Met Pro Leu Trp
                      320
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<210> 16
<211> 543
40 <212> DNA
<213> Homo sapiens

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45
   ggggctgggc cagcccagga gccccaaaag caagaggaag gggcaagggc 100

   ggcctgggcc cctggcccct ggccctcacc aggtgccact ggacctggtg 150

14

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tcacggatga aaccgtatgc ccgcatggag gagtatgaga ggaacatcga 200

ggagatggtg gcccagctga ggaacagctc agagctggcc cagagaaagt 250

gtgaggtcaa cttgcagctg tggatgtcca acaagaggag cctgtctccc 300

tggggctaca gcatcaacca cgaccccagc cgtatccccg tggacctgcc 350

ggaggcacgg tgcctgtgtc tgggctgtgt gaaccccttc accatgcagg 400

aggaccgcag catggtgagc gtgccggtgt cagccaggt tcctgtgcgc 450

cgccgcctct gcccgccacc gccccgcaca gggccttgcc gccagcgcgc 500

agtcatggag accatcgctg tgggctgcac ctgcatcttc tga 543
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<210> 17
<211> 594
<212> DNA
<213> Homo sapiens

<400> 17

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cacactgcta ctcggctgag gaactgcccc tcggccaggc ccccccacac 150

ctgctggctc gaggtgccaa gtggggggcag gctttgcctg tagccctggt 200

gtccagcctg gaggcagcaa gccacagggg gaggcacgag aggccctcag 250

ctacgaccca gtgcccggtg ctgcggccgg aggaggtgtt ggaggcagac 300

acccaccagc gctccatctc accctggaga taccgtgtgg acacggatga 350

ggaccgctat ccacagaagc tggccttcgc cgagtgcctg tgcagaggct 400

gtatcgatgc acggacgggc cgcgagacag ctgcgctcaa ctccgtgcgg 450

ctgctccaga gcctgctggt gctgcgccgc cggccctgct cccgcgacgg 500

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acgtccccgt cggctgcacc tgcgtgctgc cccgttcagt gtga 594
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<210> 18
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<211> 9
<212> PRT
<213> Artificial

<220>
<223> Artificial sequence 1-9

<400> 18
Gly His His His His His His His His
1               5               9


<210> 19
<211> 157
<212> PRT
<213> Homo sapiens


<400> 19
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His
1               5                   10                  15

Val Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn
                20                  25                  30

Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp
                35                  40                  45

Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser
                50                  55                  60

Gln Val Leu Phe Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu
                65                  70                  75

Leu Thr His Thr Ile Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys
                80                  85                  90

Val Asn Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu Thr
                95                  100                 105

Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu
                110                 115                 120

Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu
                125                 130                 135

Ile Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val
                140                 145                 150

Tyr Phe Gly Ile Ile Ala Leu
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<210> 20
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Artificial sequence 1-21

<400> 20
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<210> 21
<211> 58
<212> DNA
<213> Artificial

<220>
<223> Artificial sequence 1-58

<400> 21
 cccaagcttg ggtcaatgat gatgatgatg atgatgatgc cacaggggca 50

 tgtagtcc 58


<210> 22
<211> 328
<212> PRT
<213> Homo sapiens

<400> 22
 Met Gly Ala Ala Arg Ser Pro Pro Ser Ala Val Pro Gly Pro Leu
 1               5                   10                  15

 Leu Gly Leu Leu Leu Leu Leu Leu Gly Val Leu Ala Pro Gly Gly
                     20                  25                  30

 Ala Ser Leu Arg Leu Leu Asp His Arg Ala Leu Val Cys Ser Gln
                     35                  40                  45

 Pro Gly Leu Asn Cys Thr Val Lys Asn Ser Thr Cys Leu Asp Asp
                     50                  55                  60

 Ser Trp Ile His Pro Arg Asn Leu Thr Pro Ser Ser Pro Lys Asp
                     65                  70                  75
```

Leu Gln Ile Gln Leu His Phe Ala His Thr Gln Gln Gly Asp Leu
                      80   85   90

Phe Pro Val Ala His Ile Glu Trp Thr Leu Gln Thr Asp Ala Ser
5   95   100   105

Ile Leu Tyr Leu Glu Gly Ala Glu Leu Ser Val Leu Gln Leu Asn
                      110   115   120

10   Thr Asn Glu Arg Leu Cys Val Arg Phe Glu Phe Leu Ser Lys Leu
                      125   130   135

Arg His His His Arg Arg Trp Arg Phe Thr Phe Ser His Phe Val
                      140   145   150

15   Val Asp Pro Asp Gln Glu Tyr Glu Val Thr Val His His Leu Pro
                      155   160   165

Lys Pro Ile Pro Asp Gly Asp Pro Asn His Gln Ser Lys Asn Phe
20   170   175   180

Leu Val Pro Asp Cys Glu His Ala Arg Met Lys Val Thr Thr Pro
                      185   190   195

25   Cys Met Ser Ser Gly Ser Leu Trp Asp Pro Asn Ile Thr Val Glu
                      200   205   210

Thr Leu Glu Ala His Gln Leu Arg Val Ser Phe Thr Leu Trp Asn
                      215   220   225

30   Glu Ser Thr His Tyr Gln Ile Leu Leu Thr Ser Phe Pro His Met
                      230   235   240

35   Glu Asn His Ser Cys Phe Glu His Met His His Ile Pro Ala Pro
                      245   250   255

Arg Pro Glu Glu Phe His Gln Arg Ser Asn Val Thr Leu Thr Leu
                      260   265   270

40   Arg Asn Leu Lys Gly Cys Cys Arg His Gln Val Gln Ile Gln Pro
                      275   280   285

Phe Phe Ser Ser Cys Leu Asn Asp Cys Leu Arg His Ser Ala Thr
                      290   295   300

45   Val Ser Cys Pro Glu Met Pro Asp Thr Pro Glu Pro Ile Pro Asp
                      305   310   315

18

```
Tyr Met Pro Leu Trp His His His His His His His His
                320                 325             328
```

<210> 23
<211> 175
<212> PRT
<213> Artificial

<220>
<223> Artificial sequence 1-175

<400> 23

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Ile Phe Leu Gly Leu Gly Gln Pro Arg Ser Pro Lys Ser Lys Arg
 1               5                   10                  15

Lys Gly Gln Gly Arg Pro Gly Pro Leu Ala Pro Gly Pro His Gln
                20                  25                  30

Val Pro Leu Asp Leu Val Ser Arg Met Lys Pro Tyr Ala Arg Met
                35                  40                  45

Glu Glu Tyr Glu Arg Asn Ile Glu Glu Met Val Ala Gln Leu Arg
                50                  55                  60

Asn Ser Ser Glu Leu Ala Gln Arg Lys Cys Glu Val Asn Leu Gln
                65                  70                  75

Leu Trp Met Ser Asn Lys Arg Ser Leu Ser Pro Trp Gly Tyr Ser
                80                  85                  90

Ile Asn His Asp Pro Ser Arg Ile Pro Val Asp Leu Pro Glu Ala
                95                  100                 105

Arg Cys Leu Cys Leu Gly Cys Val Asn Pro Phe Thr Met Gln Glu
                110                 115                 120

Asp Arg Ser Met Val Ser Val Pro Val Phe Ser Gln Val Pro Val
                125                 130                 135

Arg Arg Arg Leu Cys Pro Pro Pro Arg Thr Gly Pro Cys Arg
                140                 145                 150

Gln Arg Ala Val Met Glu Thr Ile Ala Val Gly Cys Thr Cys Ile
                155                 160                 165

Phe Gly His His His His His His His
                170                 175
```

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<210> 24
<211> 206
<212> PRT
<213> Artificial

<220>
<223> Artificial sequence 1-206

<400> 24
Met Thr Leu Leu Pro Gly Leu Leu Phe Leu Thr Trp Leu His Thr
 1               5                  10                  15

Cys Leu Ala His His Asp Pro Ser Leu Arg Gly His Pro His Ser
                20                  25                  30

His Gly Thr Pro His Cys Tyr Ser Ala Glu Glu Leu Pro Leu Gly
                35                  40                  45

Gln Ala Pro Pro His Leu Leu Ala Arg Gly Ala Lys Trp Gly Gln
                50                  55                  60

Ala Leu Pro Val Ala Leu Val Ser Ser Leu Glu Ala Ala Ser His
                65                  70                  75

Arg Gly Arg His Glu Arg Pro Ser Ala Thr Thr Gln Cys Pro Val
                80                  85                  90

Leu Arg Pro Glu Glu Val Leu Glu Ala Asp Thr His Gln Arg Ser
                95                  100                 105

Ile Ser Pro Trp Arg Tyr Arg Val Asp Thr Asp Glu Asp Arg Tyr
                110                 115                 120

Pro Gln Lys Leu Ala Phe Ala Glu Cys Leu Cys Arg Gly Cys Ile
                125                 130                 135

Asp Ala Arg Thr Gly Arg Glu Thr Ala Ala Leu Asn Ser Val Arg
                140                 145                 150

Leu Leu Gln Ser Leu Leu Val Leu Arg Arg Arg Pro Cys Ser Arg
                155                 160                 165

Asp Gly Ser Gly Leu Pro Thr Pro Gly Ala Phe Ala Phe His Thr
                170                 175                 180

Glu Phe Ile His Val Pro Val Gly Cys Thr Cys Val Leu Pro Arg
                185                 190                 195
```

20

```
Ser Val Gly His His His His His His His
              200                 205 206
```

<210> 25
<211> 271
<212> PRT
<213> Homo sapiens

<400> 25

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Met Ala Lys Val Pro Asp Met Phe Glu Asp Leu Lys Asn Cys Tyr
 1           5                  10                  15

Ser Glu Asn Glu Glu Asp Ser Ser Ser Ile Asp His Leu Ser Leu
            20                  25                  30

Asn Gln Lys Ser Phe Tyr His Val Ser Tyr Gly Pro Leu His Glu
                35                  40                  45

Gly Cys Met Asp Gln Ser Val Ser Leu Ser Ile Ser Glu Thr Ser
                50                  55                  60

Lys Thr Ser Lys Leu Thr Phe Lys Glu Ser Met Val Val Val Ala
                65                  70                  75

Thr Asn Gly Lys Val Leu Lys Lys Arg Arg Leu Ser Leu Ser Gln
                80                  85                  90

Ser Ile Thr Asp Asp Asp Leu Glu Ala Ile Ala Asn Asp Ser Glu
                95                 100                 105

Glu Glu Ile Ile Lys Pro Arg Ser Ala Pro Phe Ser Phe Leu Ser
               110                 115                 120

Asn Val Lys Tyr Asn Phe Met Arg Ile Ile Lys Tyr Glu Phe Ile
               125                 130                 135

Leu Asn Asp Ala Leu Asn Gln Ser Ile Ile Arg Ala Asn Asp Gln
               140                 145                 150

Tyr Leu Thr Ala Ala Ala Leu His Asn Leu Asp Glu Ala Val Lys
               155                 160                 165

Phe Asp Met Gly Ala Tyr Lys Ser Ser Lys Asp Asp Ala Lys Ile
               170                 175                 180

Thr Val Ile Leu Arg Ile Ser Lys Thr Gln Leu Tyr Val Thr Ala
               185                 190                 195
```

21

```
     Gln Asp Glu Asp Gln Pro Val Leu Leu Lys Glu Met Pro Glu Ile
                 200                 205                 210

     Pro Lys Thr Ile Thr Gly Ser Glu Thr Asn Leu Leu Phe Phe Trp
5                215                 220                 225

     Glu Thr His Gly Thr Lys Asn Tyr Phe Thr Ser Val Ala His Pro
                 230                 235                 240

10   Asn Leu Phe Ile Ala Thr Lys Gln Asp Tyr Trp Val Cys Leu Ala
                 245                 250                 255

     Gly Gly Pro Pro Ser Ile Thr Asp Phe Gln Ile Leu Glu Asn Gln
                 260                 265                 270
15
     Ala
     271


     <210> 26
20   <211> 177
     <212> PRT
     <213> Homo sapiens

     <400> 26
25   Met Glu Ile Cys Arg Gly Leu Arg Ser His Leu Ile Thr Leu Leu
         1               5                10                  15

     Leu Phe Leu Phe His Ser Glu Thr Ile Cys Arg Pro Ser Gly Arg
                 20                  25                  30
30
     Lys Ser Ser Lys Met Gln Ala Phe Arg Ile Trp Asp Val Asn Gln
                 35                  40                  45

     Lys Thr Phe Tyr Leu Arg Asn Asn Gln Leu Val Ala Gly Tyr Leu
35               50                  55                  60

     Gln Gly Pro Asn Val Asn Leu Glu Glu Lys Ile Asp Val Val Pro
                 65                  70                  75

40   Ile Glu Pro His Ala Leu Phe Leu Gly Ile His Gly Gly Lys Met
                 80                  85                  90

     Cys Leu Ser Cys Val Lys Ser Gly Asp Glu Thr Arg Leu Gln Leu
                 95                  100                 105
45
     Glu Ala Val Asn Ile Thr Asp Leu Ser Glu Asn Arg Lys Gln Asp
                 110                 115                 120
```

22

```
    Lys Arg Phe Ala Phe Ile Arg Ser Asp Ser Gly Pro Thr Thr Ser
                    125                 130             135

    Phe Glu Ser Ala Ala Cys Pro Gly Trp Phe Leu Cys Thr Ala Met
5                   140                 145             150

    Glu Ala Asp Gln Pro Val Ser Leu Thr Asn Met Pro Asp Glu Gly
                    155                 160             165

10  Val Met Val Thr Leu Phe Tyr Phe Gln Glu Asp Glu
                    170                 175     177
```